

SC14441A/B/C, SC14442A

1.8V Single Chips for DECT with RFPA and QSPI

General Description

The SC14441A/B/C, SC14442A are a family of digital CMOS ICs with fully integrated radio transceivers including RF Power Amplifier and baseband processors for DECT & DECT 6.0 CAT-iQ and Korean DECT handsets and base stations. The program memory and data storage resided in the a low cost, low pin count Quad SPI (QSPI) Serial FLASH. The dual row LGA approach provides a backward compatible pinning to the SC14481 devices.

Refer to "SC14441, SC14442 Family overview." on page 22.

Features

- Complies with DECT ETS 300 175-2,3 & 8 and DECT 6.0 and Korean DECT (1.7 GHz)
- 10.368/20.736 xtal digital controlled oscillator.
- Processing power
 - 82.944 MHz 16 bit CompactRISC™ CR16Cplus with 16kByte instruction and data cache.
 - Four channel DMA controller with (non-)blocking mode
 - 82.944 MHz Programmable Gen2DSP with Micro Code ROM and 2k Micro Code RAM
 - Dedicated Instruction Processor (DiP) supporting CAT-iQ slot formats (1.25kbyte DIP RAM)
- Development/Debug support
 - Serial Debug interface, Nexus Class-1 compliant.
 - Performance Timer for Gen2DSP and CR16C
 - Instruction/Data/Event Trace unit
 - Gen2DSP debugger with 2 ch MCROM patching
- Memories
 - 16kbyte +4k non-shared/cache RAM
 - 32kByte shared RAM (0/1 wait cycles)
 - 48/2kByte Gen2DSP ROM/RAM
- Power management
 - 1.9 - 3.45V Operation range
 - 1.8 Volt operating voltage with 1.8-3.45V I/O
 - Charge control for 2xNiMH batteries and Li-Ion
 - Dual output Voltage tripler
 - DCDC converter with boost, buck, boost-buck operation.
- Three matched current sources for white LEDs
- Ultra low power mode (ULP) 32kHz time base and low power CR16 Mode in off mode
- Enhanced new battery detection
- Battery voltage comparator with interrupt
- Analog and Audio Interfaces
 - Dual 8, 16, 32 kHz 16-bit linear audio CODEC.
 - Analog Front End to differential and single ended microphones and 28 Ohm loudspeaker.
 - CLASSD amplifier 0.5 W 2.5 V (4 Ohm)
 - 10bit ADC for line interface, Battery voltage, temperature sensor, headset detection
 - Opamps for caller-id, ringing, parallel set detection
- Digital interfaces
 - 82.944MHz.1.8-3.3V Quad SPI interface for serial FLASH with erase suspend/resume support for EEPROM function and CAT-iQ SUOTA.
 - 4+2 general purpose I/O 8 bit ports.
 - Keyboard interface with debounce counter
 - Dual UART Full duplex 9600-230.4 kbaud.
 - Dual SPI+™ interface 20.736 MHz (Master/Slave).
 - Dual ACCESS bus 100 kHz, 400 kHz, 1.152 MHz
 - 6 channel PCM+ Interface M/S (I2S compatible)
- Three general purpose timers and watch dog timer.
- Radio transceiver
 - Integrated 1.9GHz/1.7GHz CMOS transceiver
 - <70 μ s RF PLL lock time
 - Four digital output ports (including two for fast antenna diversity switching)
 - -96 dBm receiver sensitivity
- Integrated 1.9 GHz PA for DECT and Korean DECT
 - High Power Mode EU (HPM): 25.5 dBm
 - High Power Mode USA (HPM): 23.5 dBm
 - Low Power Mode (LPM) 12 dBm
 - 'Green' Mode (GPM): 4 dBm
 - Low Radiation Mode (LRM) : -35 dBm
- Output power ramp and flatness control
- LLGA96, LLGA132, LGA96, LGA132, QFN88 packages

System Diagram

